THE INTEGRATIVE MEDICAL APPROACH

TO COGNITIVE DECLINE, DEMENTIA, DEPRESSION AND NEURODEGENERATION

HOW TO GROW NEW BRAIN CELLS

Practical, proven strategies to stimulate neurogenesis.

"Relying on the wisdom and holistic approach of Traditional Chinese Medicine, Western Natural Therapies, and a 6000 year unbroken history of Herbal Medicine, I offer a healing system that focuses on the cause of disease, not merely the suppression of symptoms.

My goal is to discover the individuality of your health problem, treat its cause, and stimulate your body to heal itself as soon as possible".

Dennis Vander Kraats

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Personal History

Dennis Vander Kraats was born in Toronto, Canada and grew up with a passion for distance running. He represented Canada nationally and internationally on a number of occasions, including the 1979 World Cross Country Championships. His success in athletics earned him a scholarship from the prestigious University of Notre Dame (USA).

After arriving in Australia, Dennis and his wife Marion successfully operated a health food store and this stimulated Dennis's desire to further his knowledge of natural therapies.

After eight more years of study, Dennis graduated from the Melbourne College of Naturopathy and Homoeopathy, the Nanjing College of Acupuncture, and the Australian Acupuncture College (Victorian University of Technology) to become a qualified Naturopath and Acupuncturist.

Dennis is now in private practice, and the director of Vander Kraats & Associates, evidence based natural medicine in Western Australia.

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THE INTEGRATIVE MEDICAL APPROACH TO COGNITIVE DECLINE, DEMENTIA, DEPRESSION, AND NEURODEGENERATION

Do you suffer from...

Poor concentration, fading memory, forgetfulness, melancholy, depression, dementia, anxiety, chronic insomnia, mental fatigue, difficulty learning new concepts, panic attacks, under achievement on exams, Alzheimer's disease?

• More than 330,000 Australians suffer with dementia
• 1,800 new cases every week.

Note:

All website links found in this booklet are available on our website at

www.vdk.com.au/integrative-links

Integrative Medicine

INTEGRATIVE MEDICINE combines mainstream medical therapies and complementary medicine and picks the best scientifically validated therapies for treatment. It recognizes the importance of the partnership between patient and practitioner in the healing process. We often rely on specific "reductionist" medical diagnoses to help guide us to choose the best holistic treatment, taking symptoms into consideration, but focusing the treatment on the underlying causes.

INTEGRATIVE MEDICINE is a philosophy which neither accepts nor rejects any type of medicine uncritically. It will not be subjugated to ideology or vested interests, but strive to do whatever is in the best interest of the patient.

Welcome

Welcome and thank you for sharing your valuable time. I hope that you find this book enlightening and empowering. More importantly, I hope that this information translates into implementing effective change and an improvement in your well being.

I have tried to write this book in a way that I would want to read a book.

So much of what we hear and read about health today is just not true. Often I am asked for my opinion on medical advice that has been given by "Dr Google". I am continually appalled by the amount of pseudoscience and absolute rubbish that is being promoted on the internet. The internet of course is one of the greatest innovations of our time. It is a great medium of free and creative thinking. But when it comes to matters of our health, we need to be very discerning.

I have written this book so it can be read on several levels. Many of us are time poor these days and the prospect of having to commit huge amounts of time to understanding important concepts which affect our health can be discouraging and daunting. On the other hand, if the information is too simplistic and general, the message will lack the gravitas that it deserves considering the importance of the subject matter.

After 35 years in the health industry, I often am guilty during consultations of assuming that what health practitioners consider as fundamental and assumed concepts, are often unsettling and paradigm changing to those outside the industry. It has been estimated that people only retain about 10% of the information that is passed on during a consultation and so I summarize much of what is spoken about in written handouts in clinical practice.

I believe the purpose of the patient practitioner relationship is to empower the individual to make the best decisions about their health based on both empirical and evidence based information. I believe that when one understands and accepts the rationale for the treatment, there are better outcomes. Confidence in the treatment protocol enhances the healing process partially due to the amazing power of the subconscious mind.

Hence most of the concepts and conclusions are explained in a concise and easy to understand manner. However, much of the information that I state and recommendations will be backed by peer reviewed published medical studies. References will be given so that the studies are easily accessible for those wishing to delve deeper. Or perhaps, you may wish to share them with your health care practitioner or specialist. People of science should always be willing to consider different points of view which are evidence based.

If you are reading this in electronic form the study references and other relevant information are hyperlinked so you can assess immediately. Many of the studies and conclusions are absolutely amazing and are often contrary to many accepted mainstream medical views. This should not be surprising since it has been estimated that medical knowledge doubles every 5 to 7 years. In science, something is true only until it is disproven. Things change all the time!

Many people rely on the internet to help understand their health and treatment options. Unfortunately there is so much misinformation being disguised as "scientific" it is hard for those not in the industry to know the difference.

The next tip is very empowering!

It may become evident that most of the references I use and cite in the Ebook have one thing in common. Most are all sourced from PubMed.

PubMed is a free search engine of references and abstracts of globally published scientific studies on a huge range of health topics. The United States National Library Of Medicine maintains the database and contains over 24 million entries. Approximately 500,000 new entries are added yearly.

To search a topic, simply type in the subject matter that you wish to explore followed by PubMed. Conclusions and summaries are given freely. Often a fee is required to access the complete medical study.

For example if you wanted to know if there are any published medical studies linking "inflammation and cognitive impairment" simply type:

cognitive decline inflammation pubmed

into your search engine. The first search result in my search engine comes up with...

http://www.ncbi.nlm.nih.gov/pubmed/25178630

Pubmed has a huge range of medical and health related subjects. As an avid organic gardener with chickens I was curious to see if there were any studies on the effects of feeding kale to chickens. I typed in...

Kale chickens pubmed

To my amazement there were several studies including...

http://www.ncbi.nlm.nih.gov/pubmed/22646790

Search results can vary due to different search engines or new studies. Some topics can have hundreds of related studies and sometimes changing a key word in your search can help narrow down the search results.

Of course not all studies are true and can be trusted. Many medical studies are flawed or biased for numerous reasons. But one can gain confidence in conclusions when multiple studies reach similar conclusions and are in general agreement.

Considering the results of meta-analysis are often valuable. Meta-analysis provide a more powerful analysis of results than individual studies since meta-analysis uses a statistical approach to combine the results from multiple studies. For example if 6 studies agree on the conclusions of what is being studied, and 1 study has dissenting conclusions, less weight is give to the study that dissents. The number of studies on a topic, the number of participants, where the study is done, who is doing the study, and the duration of the study all are important factors when assessing the validity of results.

Often the media focuses on the "dissenting studies" and does not take a meta-analysis approach when reporting the conclusions to sensationalise the news.

You may also notice that many of the studies are done on animals. Firstly it is impossible to do many of the studies on humans since many of the techniques of analysis are too invasive and dangerous.

Secondly, most pharmaceutical drug studies use animals for testing in the early stages. When results are positive, the study progresses to the human stage. This does not occur with many botanicals and natural substances since there is no financial incentive to proceed to human trials. Natural substances cannot be patented. Human trials are extremely costly and the unavailability of patent rights for natural substances is a major disincentive for financial investment and further investigation.

People are often unwell for a very long time before they get a disease

When one seeks medical advice for a health concern, often a clear diagnosis or cause cannot be found or explained. This is due to the fact that much of modern medicine is reductionist in nature. This method believes that problems can be completely understood in terms of its simpler parts or components. In other words, causes of disease can be diagnosed in singular terms. For example, the cause of your "problem" is a bacterial infection. Or the cause of your "problem" is high blood pressure. While in no way disparaging this approach which is valid for many diseases, it often fails when illnesses are caused by the cumulative effect of many, not so obvious contributing factors, often over years or decades.

This is particularly true of many illnesses which are the result of chronic degeneration. People are often unwell for a very long time, (whether they realise it or not), before they get a disease. The ideal strategy is to intervene early in the degenerative stage before the disease becomes manifest.

Hence, the focus of this book is to intervene as early as possible in the degenerative stage. The earlier one can assess the contributing factors and causes of degeneration, the better the chances for slowing down, halting, or reversing the process.

Early warning signs

Can't remember the name of a friend that you've known for years? Enter a room and think, "Now, why am I here?". Often lose things and make wrong turns while driving? Is the quality of your sleep consistency getting worse?

Are you getting more anxious, easily frustrated, agitated, and moody? You don't think you're depressed but you sure feel flat and melancholic. You've been resting a lot but still feel tired all the time?

Tasks which were once enjoyable and easily achieved become a chore and burdensome. Do you procrastinate more? Do you keep repeating the same question?

Are you starting to avoid social interaction and prefer to stay at home most of the time? When you converse with people does it seem like you're not really there with them? Are people tending to paraphrase and explain things more to you to help you understand what you should have comprehended?

Do you think you are slowly losing it?

The before mentioned symptoms can be early warning signs of cognitive decline and/or neurodegeneration. It is extremely important that you don't ignore these early warning signs before it is too late. I implore you to become proactive. You will see that based on many scientific medical studies, much of cognitive decline and neurodegeneration can be slowed down, halted and indeed reversed by incorporating many of the strategies mentioned in this book.

The key is to act early. In clinical practice people often ask me if they can help their 80 year old parent with advanced Alzheimer's disease who is currently taking about a dozen prescription medications. The answer is probably not. It's too late!

Had they intervened years earlier, I believe there is a good chance that the progression of their illness would have been different and their quality of life much better.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3788702/

Physically tired or brain tired

One of the most common complaints in clinical practice is that of lethargy and tiredness. Often all pathology tests are normal and no diseases can be detected.

In some cases I've treated, after a course of therapy with improvements shown with various objective tests, the patient should have experienced an improvement in wellbeing and energy...yet the fatigue persists.

This got me thinking back to the days when I used to be a middle distance runner representing Canada, training twice most days and routinely running 160 km per week. Was I often tired? You bet!

But the amazing thing was that on the days that I perceived myself to be absolutely jaded and dreading the training session or race, I surprisingly performed extremely well.

How could I think that I was so tired when the stopwatch proved otherwise? Simply stated, my brain was tired.

The mind is everything

Many elite athletes understand that the power of the mind is the rate limiting factor in athletic performance. Paavo Nuumi, nicknamed the "Flying Finn", winner of 12 Olympic medals and arguably the best distance runner of all time said: "Mind is everything. Muscles are pieces of rubber. All that I am, I am because of my mind."

The Olympic Gold medallist and former mile world record holder, Australian Herb Elliot was mentored by the unorthodox coach Percy Cerutty. As revealed in his fascinating book, "BE FIT! OR BE DAMNED" Cerutty was a paradigm shifting proponent of a holistic approach to training. Apart from gut wrenching workouts that would kill a gazelle, including repeated runs up steep sand dunes, he imposed strict dietary regimes and demanded a tough minded allegiance from his athletes. There was no room for compromise. It was his way or the highway. He knew that if your mind would fail, so would your body. The title of his book is indicative of his coaching ethos.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3323922/

The illusion of fatigue

We now understand that sensations of fatigue are often illusionary since they may not accurately reflect the true physical health of an individual. The more obvious example is that of the elite athlete. But the same principles can apply to most of us. Subconscious and conscious attitudes and decisions are major determinants of how we feel and perform.

The mind and body are inseparable and of course physical disease and aging can reduce our energy levels. The holistic health approach strives to address the physical causes of energy and mind depletion, as well directly enhancing brain function.

I have found that by energizing people's minds, not only does their energy improve, but they have improved clarity of thought, better moods, less inflammation, and other symptomatic improvements.

Never well since

One of the most important parts of taking a patient case history is to take into account the "never well since" factor. Many illnesses can be traced back to an event that triggers a cascade of biological processes that create numerous symptoms and can eventuate in serious disease.

Even the after the trauma or stress has been resolved, often the residual impairment lingers unless proactive measures are taken to restore balance.

Over the decades of clinical experience, many patients have often referred to an event which seems to have triggered their decline in health. Events that can trigger this "never well since" condition include death of loved ones, viruses, bacterial infections, hospitalisation, operations, and prescription medications.

Linking the "never well since" causal factor with the current day malady is often crucial to formulating a health restoring plan.

Post-traumatic stress disorder

Post traumatic stress disorder is a classic example of a past psychological event having a dramatic effect on both mind and body.

When we perceive that we are under threat of danger, whether physical or psychological, the brain and nervous system go into survival mode. Many hormonal and neurotransmitter responses are put into "overdrive". Heart rate and blood pressure increase, and in a sense, we physiologically become like a boxer that is about to enter the fight ring. This is generally a good thing as it helps us survive life threatening circumstances.

The problem occurs when this "fight or flight response" occurs over a long period of time perhaps due to a war, an abusive relationship, or a stressful job. This state of fear and "hyper arousal" can lead to numerous symptoms such as insomnia, nightmares, anger, irritability, and violent tendencies. Over time the body becomes exhausted and the state of hyper arousal can fade to depression, exhaustion, confusion, and withdrawal.

The subsequent extent of brain damage due to this chronic psychological stress share many common neurobiological changes and symptoms as those who have experienced a physical brain trauma.

For many people these events are powerful drivers of cognitive decline and neurodegeneration.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3182008/

Chemotherapy induced cognitive impairment

Another example of the "never well since" syndrome is chemotherapy induced cognitive impairment. There is growing evidence in medical literature that people who take chemotherapy medicine have an increased risk of cognitive impairment. Referred to as "chemobrain" or "chemofog" I have witnessed many survivors of cancer who exhibit symptoms of cognitive decline and neurodegeneration.

http://www.ncbi.nlm.nih.gov/pubmed/20832978

Post stroke cognitive decline

Stroke is a major cause of cognitive decline. A stroke, sometimes referred to as a cerebrovascular accident (CVA), is the loss of brain function due to a disturbance in the blood supply to the brain. This can be caused by a lack of blood supply (ischemia) or by internal bleeding (haemorrhage). As a result, the damaged area of the brain is no longer able to control related parts of the body such as limbs on one side of the body, facial expressions, or speech.

There are many contributing factors to the cause of stroke. Indeed, many of the causes of stroke also contribute to cognitive decline and neurodegeneration.

Anything that can improve healthy blood flow can potentially prevent the incidence of stroke. Nobel prize winner in medicine Dr Ignarro espouses the importance of maintaining healthy nitric oxide levels in the blood as a preventive strategy. Nitric oxide is a major signalling molecule which relaxes and naturally widens (vasodilates) blood vessels. Optimal blood nitric oxide levels help prevents heart disease and improves circulation.

http://www.amazon.com/More-Heart-Disease-Prevent-Even-Reverse-Heart/dp/0312335822

Generally speaking, the healthier the cardiovascular system is, the healthier the brain. An emerging consensus of thought believe a major factor in cognitive decline is poor circulation to the brain. Indeed, some medical researchers suggest that Alzheimer's disease should be reclassified as a vascular disorder. At the onset of early warning signs, tests could be used to detect early signs of poor circulation to the brain to help implement preventative strategies to focus on the root of the problem.

http://www.ncbi.nlm.nih.gov/pubmed/12480752

http://www.ncbi.nlm.nih.gov/pubmed/15734937

http://www.journal-imab-bg.org/issue-2012/book3/JofIMAB2012vol18b3p290-297.pdf

What is cognitive decline?

Cognition is the mental action or process of acquiring knowledge and understanding through thought, experiences, and senses. Cognitive decline is when this ability declines greater than what is expected for that person's age and education level. It is estimated that more than half of people suffering from cognitive decline progress to dementia. It is thus considered a risk state for dementia.

http://www.ncbi.nlm.nih.gov/pubmed/16631882

The good news

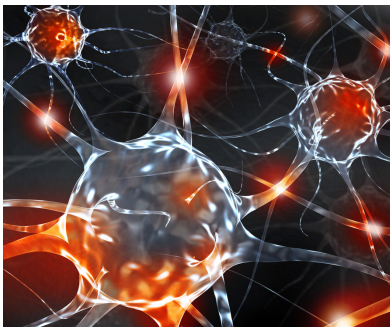
Although cognitive decline is very common and seems to be starting earlier in life, the good news is that the brain does have an amazing capacity to heal and improve in function given the right conditions. This will often include specific nutrients which stimulate healing as well as modifying lifestyle factors and disease processes that contribute to cognitive decline and neurodegeneration.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181802/

http://www.ncbi.nlm.nih.gov/pubmed/25427149

What is neurodegeneration?

Neurodegeneration is the umbrella term for the progressive loss of structure or function of neurons, including the death of neurons. Neurons or nerve cells are cells that process and transmit information through chemical and electrical processes. Neurons interact with other cells and form information networks which can be likened to the internet of the body. Neurons are the fundamental building blocks of the brain, spinal cord, and the nervous system.



Neurodegeneration can be caused by problems in the "hardware" and/ or the "software" of the system. There can be physical deterioration or damage to the neurons themselves (hardware) due to many causes. And/or there can be disruption in the messaging systems between the neurons which include neurotransmitters (software).

Severe neurodegeneration results in diseases such as Alzheimer's, Parkinson's disease, and Huntington's disease. However, neurodegeneration is a gradual deterioration which can take years or decades to develop. It is thought that

gene defects play a major role in neurodegeneration. However, there are also epigenetic factors which can affect gene expression. In other words, environmental factors can either "turn on" and promote gene expression or "turn off" and promote down regulation of gene expression. Having a gene defect does not always result in the gene associated disease being manifested.

http://www.ncbi.nlm.nih.gov/pubmed/22122050

Neurogenesis : Growing new brain cells

Medical science once thought that the number of brain cells that one had was finite and that once past a certain age, the only way was "down" with progressive loss in the number of brain cells and brain function.

Neurogenesis is the growth of new nervous system and brain tissue including neurons. Numerous studies show that many lifestyle factors as well as foods, nutrients, and herbs can stimulate neurogenesis.

Exercise:
http://www.ncbi.nlm.nih.gov/pubmed/17374720
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3258000/

Curcumin:
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3281036/
http://www.ncbi.nlm.nih.gov/pubmed/17617388
http://www.ncbi.nlm.nih.gov/pubmed/18362141

Healthy sex life:

http://www.ncbi.nlm.nih.gov/pubmed/23460298

Calorie restriction:
http://www.ncbi.nlm.nih.gov/pubmed/23773068

Living in a rich environment:
http://www.ncbi.nlm.nih.gov/pubmed/9547229

Omega 3 fatty acids:
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1892224/

Green tea:
http://www.ncbi.nlm.nih.gov/pubmed/20013823

Galantamine:

http://www.ncbi.nlm.nih.gov/pubmed/24818616

Brain health and diet

There are many foods, herbs, and supplements which can contribute to brain health. Some act directly on the brain stimulating neurogenesis. Others affect the brain indirectly through preventing or improving bodily processes which can contribute to declining cognitive and/or nerve function.

http://www.ncbi.nlm.nih.gov/pubmed/19661617

http://www.nature.com/ejcn/journal/v68/n11/full/ejcn2014173a.html

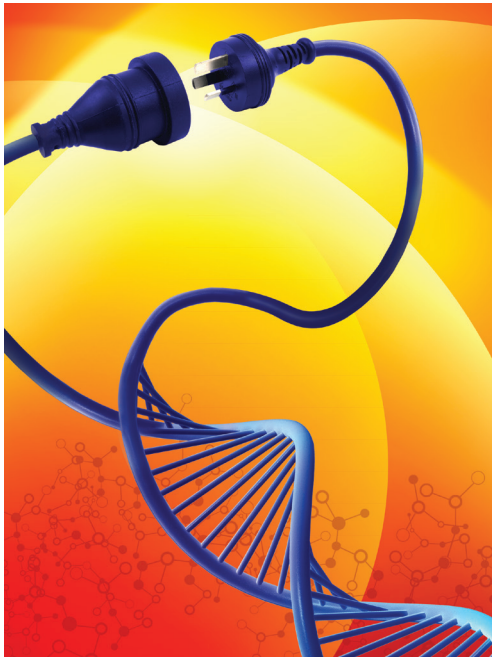
Something as simple as water for example is important for good brain function. Prolonged states of dehydration can impair brain function and can actually affect brain structure.

http://www.ncbi.nlm.nih.gov/pubmed/20336685

Although diet and lifestyle are of paramount importance in brain health, there are specific medicines which we'll see later in this book that can have a dramatic effect in slowing down, halting, and even reversing cognitive decline and neurodegeneration.

Epigenetics : Changing your own genetic destiny

In recent years there has been a revolutionary paradigm shift in the understanding of the function and role of genetics on human development. The emerging new science of epigenetics has revealed the profound influence, previously understated, that the environment has on who we are. And more importantly, who we can be. Epigenetics help us understand the profound implications that nutrition and environment has on genes and the health of the brain.



Often we only consider the immediate and short term affects of diet and lifestyle on our health. However it is now understood that diet and lifestyle has a profound

long-term effect on our health by having an influence on our genes.

Modifications to our DNA without changes in the DNA sequence are known as epigenetic changes. The accumulation of these changes is known as the epigenome. The epigenome comprises all the chemical compounds that have been added to our DNA without changing the actual DNA structure.

Many diseases including cancers and degenerative disorders have all been found to be related to abnormal gene activity due to epigenetic influences and mistakes. Environmental influences such as pollutants, diet, and lifestyle can exert epigenetic influence on our DNA can profoundly affect our health.

Download free booklet: ***http://www.vdk.com.au/epigenetics***

http://www.ncbi.nlm.nih.gov/pubmed/25182020

Gene switches

The notion that our DNA code is the sole determining factor of our physical destiny has been superseded by the construct that many of our genes have switches. These gene "switches" come in the form of "on and off switches" as well as "dimmer switches". These switches can be influenced by the interaction between the genes and the environment.

A more technical definition of epigenetics is the differing expressions of the genes caused by environmental influences without actually changing the DNA code. Imagine that the genes are like the members of an orchestra and that the epigenetic influencer is the "conductor". The genes are capable of playing many "symphonies" depending on the directions of the conductor. A poor conductor can cause the individual musicians in the orchestra to perform poorly and the cumulative manifestation is chaotic and poorly reflects the beauty of the original musical "code". This poor expression of exquisite musical talent occurs without changes to the musicians themselves.

Invisible vitamins cause cognitive decline

A number of vitamins including folic acid, B12, and B6 are essential for healthy brain function. Severe deficiencies of these vitamins have been linked to a number of psychiatric diseases and cognitive decline. The body however cannot use these vitamins in their original form. They must be "activated" by a natural process in the body called methylation.

Folic acid must be converted to folinic acid, B5 must be converted to pyridoxal-5-phosphate, and B12 must be converted to methylcobalamin before these

vitamins can be used by the body. Even if dietary intake of these vitamins is optimal, without being converted to their active form by the methylation process, in a sense these vitamins remain "invisible" to the body and cannot be used.

The name of the gene which controls this methylation process is called "methylenetetrahydrofolate reductase (NAD(P)H)" otherwise known as the MTHFR gene.

http://www.sciencedirect.com/science/article/pii/S0149763414002048

Defects in the MTHFR gene can be detected by pathology testing using a simple swab inside the mouth (buccal swab).

http://www.healthscopepathology.com.au/index.php/functional-pathology/tests/mthfr-gene-testing/

The environment and transgenerational effects

The term "environment" has a much broader meaning in context of epigenetics. Environmental influences on the genes can be in the form of food, drugs, herbs, chemicals, radiation, emotions, and lifestyle. When we gaze through the prism of the epigenetic mindset we see that our genetic heritage is part of our environment. Numerous studies have shown that epigenetic influences can be transgenerational. In other words, changes to gene activity due to epigenetic influences in our parents' environment can be passed on to the children.

If you recall, modifications to our DNA without changes in the DNA sequence are known as epigenetic changes. The accumulation of these changes is known as the epigenome. The epigenome comprises all the chemical compounds that have been added to our DNA without changing the actual DNA structure. So the "memory" of these changes can be passed on, at least it part, to our children.

Since our epigenome and gene expression influences profoundly all aspects of health including degenerative processes which lead to cognitive decline and neurodegeneration, we can see the possible influence that our lifestyle can have on not only ourselves, but also our children.

This can be both frightening and liberating and can change our perception about the responsibilities of parenting.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2848884/

Pharmagenomics : Transgenerational side effects

Pharmagenomics refers to the study of the epigenetic changes to genes as a side effect of pharmaceutical drugs. The understanding that drugs could have epigenetic side effects can broaden our understanding of what a drug side effect is. Drug trials study side effects whilst patients are taking the drugs. Long term studies of epigenetic side effects of drugs (if undertaken!), including transgenerational studies, could force people to reassess the risks and benefits of medications. The possibility that children can suffer from drug induced transgenerational epigenetic illnesses due to the parents' drug therapy is alarming.

The role of epigenetics is cognitive ageing

http://www.ncbi.nlm.nih.gov/pubmed/25098266

Acupuncture for the treatment of cognitive decline and neurogeneisis

For centuries acupuncture has been use to treat a number of illnesses including mood enhancement and depression. It has only been in recent decades that medical studies have explained how acupuncture has a beneficial effect on the brain. Studies show that acupuncture can have a favourable effect on neurotransmitters as well as stimulating neurogenesis Acupuncture can also stimulate the brain's natural chemical to protect itself form oxidative stress. A holistic approach for cognitive decline and neurogenesis should ideally include acupuncture.

http://www.ncbi.nlm.nih.gov/pubmed/21981864

http://www.ncbi.nlm.nih.gov/pubmed/10592837

http://www.ncbi.nlm.nih.gov/pubmed/24215918

http://www.ncbi.nlm.nih.gov/pubmed/25120577

http://www.ncbi.nlm.nih.gov/pubmed/24915606

http://www.ncbi.nlm.nih.gov/pubmed/25161693

What are nootropics

Nootropic is a term originating from two Greek words noos (meaning mind) and trope (meaning turning). Literally then, it means "mind turning". Current day usage of the term refers to any substance that restores, improves, increases, and facilitates cognitive abilities such as learning, concentration, alertness, and memory. They often are derived from natural sources such as botanicals and amino acids and possess very few side effects and exhibit extremely low levels of toxicity.

Unlike coffee and stimulant drugs which have a temporary effect on the central nervous system, the cognitive enhancing effects of nootropics are often cumulative and gradual.

Different nootropics improve brain function in different ways. Some work by improving neurotransmitter efficiency. Neurotransmitters are natural chemicals in the body which allow your neurons to communicate with each other.

http://www.ncbi.nlm.nih.gov/pubmed/17266573

Others work by increasing blood flow to the brain thereby improving oxygen and nutrient supply to the neurons. Research shows that poor cerebral circulation is associated with many cases of cognitive decline.

Nitric oxide, the major signalling molecule of the cardiovascular system can be classified as a nootropics because of its profound effect on maintaining healthy circulation to the brain.

http://www.ncbi.nlm.nih.gov/pubmed/12480752

The brain has an amazing capacity to heal even as we get older. Some nootropics encourage the growth and repair of neurons by stimulating the production of nerve growth factor (NGF) and brain derived neurotrophic factor (BDNF)

NGF is a protein that is essential for the growth, maintenance, and survival of certain neurons.

http://www.ncbi.nlm.nih.gov/pubmed/10850728

NGF is an important factor in cognitive decline and Alzheimer's disease.
http://www.ncbi.nlm.nih.gov/pubmed/20186703

As mention earlier, the importance of lifestyle and diet cannot be underestimated

for optimal brain health. But the exciting emerging science of nootropics often offers a more direct stimulation of the brain and nervous system healing process.

Some studies suggest that nootropics are as effective as many pharmaceutical interventions in brain health.

http://www.ncbi.nlm.nih.gov/pubmed/11277345

Some nootropics work on enhancing the effectiveness of neurotransmitters like acetylcholine which is critical for healthy memory function. Acetylcholine was the first neurotransmitter identified in the history of neuroscience and has profound effect on brain and nervous system function.

Other nootropics work on repairing the communication network between the brain cells. We need optimal neurotransmitter levels in our brain for the transmission of messages between neurons and we also need good "wiring" for those message to be delivered.

http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=8&ved=0CEgQFjAH&url=http%3A%2F%2Fwww.dovepress.com%2Fgetfile.php%3FfileID%3D14690&ei=8uDCVLWKOc268gW0h4HwCw&usg=AFQjCNGAHGHIw_eGn5vVR3DcJ6aXgCaOtA

Effectiveness and safety of citicoline in mild vascular cognitive impairment: the IDEALE study. *http://www.ncbi.nlm.nih.gov/pubmed/23403474*

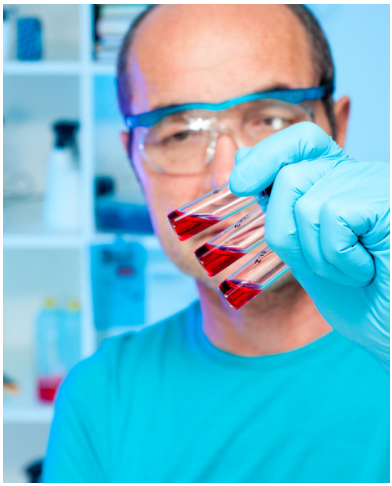
Why hasn't my doctor told me about this

Many Doctors in other countries use nootropics and integrative medicine treatments, and in all fairness, some do in Australia as well. But as you'll see, diagnosis and treatment of the many processes involved in cognitive decline and neurodegeneration are time consuming and are difficult to do in the context of a short consultation.

Pharmaceutical companies ignore many medicines if they are not patentable. Why would a drug company spend tens of millions of dollars going through the process of medical studies and government compliance if there is little money in it?

Most of the medicines referred to in this book will not be subsidized by the government. The conventional medical model is generally based on clearly diagnosed diseases. The strategies described in this book in a sense don't treat disease per se. But rather processes which lead to disease.

Why guess when you can test?
The role of functional pathology



Functional Pathology refers to numerous pathology tests which investigate functional, biochemical, metabolic, and hormonal status. Most commonly, blood, urine, and saliva are used as test samples.

Functional Pathology, generally speaking does not diagnose disease per se. But rather Functional Pathology measures functional processes, deficiencies, excesses, toxins, allergies, neurotransmitters, and hormones. In and of themselves, these metrics are not diseases, but rather processes or conditions which can lead to degeneration and eventual disease states.

These results provide practitioner and patient essential information for intervening early in the process so as to prevent, slow down, or reverse the disease process. Focusing on the functional causes of a disease process, instead of merely treating its symptoms, provides a tool for early intervention and facilitates an integrative and holistic medical approach.

Patients often have mixed feelings when disease oriented pathology tests continually have negative results. It is a good thing because the patient doesn't have the disease, but the patient's suffering and problems remain inexplicable. Continually being told that "there is nothing wrong with you" can be very disconcerting. Worse still, a diagnosis of depression is sometimes made by default.

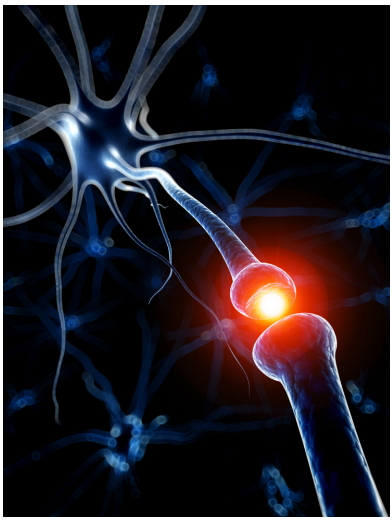
But is it working?

Often changes and progress can be measured before the patient feels better. People are often unwell for years before a disease develops and the healing process can take time. The additional advantage of having your diagnosed Functional Pathology results "in black and white" is that one is able retest.

The original results serve as baseline markers so that progress can be measured with subsequent testing. Functional Pathology testing provides a tool for early intervention, management, and monitoring of ongoing treatment efficacy. Many of the tests are designed so patients can collect specimens in the privacy of their homes or in the practitioner's clinic.

We have to understand that in most cases there are often a myriad of factors that can have a synergistic and cumulative effect in this insidious decay. By addressing as many deleterious factors as possible, we increase the chance of the body being able to heal itself. The severity and duration of the degeneration, how many factors are implicated, and genetic predispositions will all influence the prognosis of the treatment.

What are neurotransmitters?



Neurotransmitters are the natural brain chemicals that communicate information throughout our brain and body. They are how nerve cells and brain cells communicate with each other. Each neuron may have thousands of branches that connect it to other neurons. The branches are called dendrites or axons. Dendrites carry messages toward the cell body; axons carry messages away from the cell body to another neuron. Axons extend for as long as four feet in humans. In some animals, axons are even longer.

At first, science thought that axons and dendrites simply ran through the body continuously, like wires. Later, it was discovered that a space was between each axon and dendrite. These spaces are call synaptic gaps, or synapses. The synapse is the space between the axon of one neuron and the dendrites of the next neuron in a nerve pathway and is about one-millionth of an inch wide. The natural chemicals that the body produces to facilitate the transmission of messages across the synaptic gaps are the neurotransmitters.

Neurotransmitters regulate most bodily functions including breathing, heart rate, digestion, and brain function. They affect mood, memory, concentration, glucose/insulin balance, pain perception, sleep and weight. They have a major influence on moods and cognitive function.

Depletion or imbalance of neurotransmitters is very common. Stress, poor diet, toxins, genetics, age, prescription and recreational drugs, alcohol, caffeine are all causes of neurotransmitter disruption.

Testing neurotransmitters

It has only been in recent years that neurotransmitters can be tested using urine samples. This is tremendous tool for ascertaining neurotransmitter levels and comparing them with ideal or target levels. This test is also valuable to assess how effective current medication is.

http://www.ncbi.nlm.nih.gov/pubmed/20696183

There is conflicting evidence about how effective antidepressant drugs actually are for a number of reasons. I believe that one of the reasons is that serotonin, a major neurotransmitter for depression, is often assumed to be low in symptoms of depression. However, in my experience the serotonin levels are frequently shown to be within the normal range. The test often reveals that other neurotransmitter(s) such as dopamine, GABA, glutamate, adrenalin, noradrenalin, or cortisol are the problematic one(s). Testing is often essential for diagnosis and eliminates guess work in the prescription process and is an important tool for measuring progress.

http://www.ncbi.nlm.nih.gov/pubmed/18505564

For further information on the significance of neurotransmitter function and brain health and a short list of disease corollaries please visit...

http://nutripath.com.au/wp-content/uploads/2013/12/NP-NEW-TestFlyerA4-Neurotransmitter-Profile-Extensive.pdf

The nitric oxide factor: How's your circulation?

The importance of having a healthy circulatory system cannot be underestimated when discussing brain health. In fact some dementias are defined as being vascular in origin. We know that the blood delivers nutrients, immunity, and oxygen and thus a well nourished brain is depended on good circulation. A healthy brain is just as dependent on optimal blood flow as a healthy heart.

http://www.ncbi.nlm.nih.gov/pubmed/12480752

One of the major determinants of healthy circulation is the levels of nitric oxide in the blood. Nitric oxide is an important signalling molecule that instructs many critical functions of the cardiovascular system.

Nitric oxide – the ubiquitous signalling molecule

Literally tens of thousands of scientific studies have been published on nitric oxide and more are done each year. It is becoming more clearly understood that nitric oxide has a regulatory influence on virtually every cell and organ of the body.

Nitric oxide's most profound effect on the body is that of a powerful vasodilator. A vasodilator is a substance that increases the diameter of blood vessels and promotes healthy blood flow. Healthy nitric oxide levels also help to relax arteries and main flexibility.

https://www.youtube.com/watch?v=yn5s9Ovwly8

Nitric oxide is the body's own natural cardiovascular regulator and is produced by the vascular endothelium. This endothelium is a thin, fragile layer of cells, which line the blood vessels of the body. Many factors reduce the health of this lining and hence reduce the production of nitric oxide.

Much of the research on nitric oxide was done by Nobel Prize winner in medicine Dr Louis J Ignarro. His book, NO More Heart Disease is an excellent introduction to the profound health giving effects of nitric oxide.

http://www.amazon.com/More-Heart-Disease-Prevent-Even-Reverse-Heart/dp/0312335822

Since healthy blood flow is vital for brain health and nitric oxide is a major determinant of maintaining optimal circulation, we can readily deduce the importance of maintaining healthy nitric oxide levels for preventing cognitive decline.

During the aging process the production of nitric oxide naturally wanes. Any process that damages the lining of the arteries (endothelium) where the nitric oxide is produced will start a chain reaction, which can eventually lead to cardiovascular disease and poor circulation to the brain.

Poor nutrition, smoking, lack of exercise and a build up of plaque in the arteries will reduce nitric oxide production. This reduction increases blood pressure, reduces cardiovascular fitness and increases the risk of heart attacks, strokes, and cognitive decline. Poor blood supply has also been associated with diabetes, arthritis, poor memory, dementia, and male impotence.

Starving brains?

The research and medical studies, without question conclude that maintaining healthy nitric oxide levels are critical for the health of the cardiovascular system. Indeed, all organs and tissues of the body will benefit from a healthy circulation. This is especially true for your brain.

Like all tissue, the brain requires optimal levels of blood to continually feed the brain with nutrients and oxygen. The qualities of our diet, supplements, and our interaction with the environment have a profound effect on the health of the brain.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2805706/

However, it is the responsibility of the blood and blood vessels to deliver these nutrients to the brain. Little benefit will be derived from even the best diet if these nutrients cannot be delivered to the brain.

Nitric oxide and cognitive function

Since healthy brains are dependent on optimal blood supply and nitric oxide is critical for healthy circulation, we can begin to see a causal relationship between nitric oxide levels and cognitive function.

Indeed, many medical experts consider most dementias, including Alzheimer's disease, to be vascular disorders. The pathogenesis, or the manner in which a disease develops, for dementia is thought to be initiated by the deterioration of the endothelial lining of the blood vessel. The cells lining the blood vessel are responsible for the production of nitric oxide. A slow, progressive degeneration of these linings reduce nitric oxide levels which impair circulation throughout the body, and especially the brain. The resulting poor circulation (known as cerebral hypoperfusion) slowly and imperceptibly, starves the brain of oxygen and nutrients and damages the tiny blood vessels in the brain. This degenerative process also fosters chronic inflammation, a damaging process in and of itself.

http://www.ncbi.nlm.nih.gov/pubmed/12480752

Concomitant with chronic inflammation is the production of damaging enzymes which degrade tissue. Take for example osteoarthritis. We can feel the painful effects of inflammation, but are not aware of these associated enzymes which slowly "eat away" our cartilage and connective tissue. Our brain can suffer from subtle inflammatory processes for decades without us knowing it since we don't have the nerves in the brain to let us feel this type of inflammation. The same chronic inflammatory processes can also affect our nerve cells outside the brain.

A malnourished, hypoperfused, inflamed brain is the perfect storm for neurodegeneration and cognitive decline.

There are a number of nutrients which help stimulate the body's own production of nitric oxide. Based on Dr Louis J Ignarro's recommendations as well as insights from my own personal clinical experience I have created a formula to effectively increase nitric oxide called The Nitric Factor.

http://www.vdk.com.au/the-nitric-factor

Inflammation, cardiovascular disease, and dementia

In 2002, doctors at Harvard University published the first of a series of landmark research studies revealing the central role of inflammation in cardiovascular disease. Cardiologist Paul Ridker, who led the study, said that, "we have to think of heart disease as an inflammatory disease, just as we think of rheumatoid arthritis as an inflammatory disease".

Although inflammation is nature's way to help heal things such as traumas and pain, uncontrolled chronic inflammation can cause a number of diseases. Like a forest fire burning out of control, chronic inflammation damages the lining of the arteries and this reduces the production of nitric oxide.

Damaged arteries become "sticky" and allow cholesterol to form plaque and eventually block blood vessels. Recent studies suggest that cholesterol levels and saturated fats are not a risk factor for heart disease.

http://www.ncbi.nlm.nih.gov/pubmedhealth/behindtheheadlines/news/2014-03-18-saturated-fats-and-heart-disease-link-unproven/

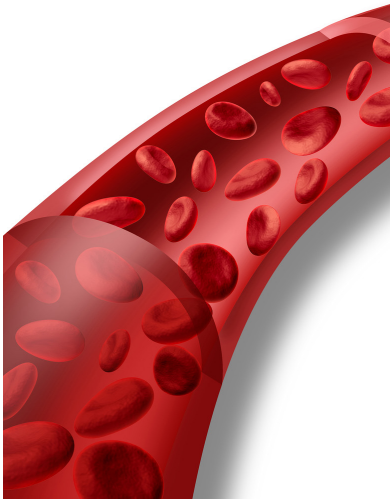
These studies also concluded that trans fats were a risk factor for cardiovascular disease.

Artificial trans fats (or trans fatty acids) are manufactured adding hydrogen to liquid vegetable oils to make them more solid.

The primary dietary source for trans fats in processed food is "partially hydrogenated oils." The use of trans fats in foods have been deemed unsafe and are banned in many countries. At the time of writing this book, trans fats are not banned in Australia.

Trans fats can be found in many foods – including fried foods like doughnuts, and baked goods including cakes, pie crusts, biscuits, frozen pizza, cookies, crackers, and margarines.

Therefore it is the assault of chronic inflammation which damages the artery wall which allows the cholesterol to "stick". The cholesterol itself is not a causative factor.



A very useful test that I encourage my patients to have is High Sensitive C-Reactive Protein. As distinct from C-Reactive Protein, which measures general inflammation in the body, High Sensitive C-Reactive Protein measures inflammation in the arteries and is a predictor of myocardial infarction, stroke, peripheral arterial disease, and sudden cardiac death among healthy individuals with no history of cardiovascular disease.

http://www.ncbi.nlm.nih.gov/pubmed/15258556

It is somewhat ironic that the widespread use of statin drugs to lower cholesterol in an attempt to reduce the risk of cardiovascular disease has been shown to increase the risk of congestive heart failure, muscle aches, and pains, general weakness, fatigue, and cognitive decline.

Statin drugs often reduce the enzyme CoQ10, a necessary enzyme involved in the production of energy in the mitochondria. Mitochondria are the tiny engines inside cells which are responsible for producing most of the body's energy. It appears that athletes and the elderly are most at risk for statin induced side effects.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3096178/

http://www.ncbi.nlm.nih.gov/pubmed/10416041

Studies show that supplementing with CoQ10 can help mitigate the side effects of statin drugs. The higher the dose of statin drugs prescribed the greater the dose of CoQ 10 needed. In my experience, the dosage range needs to be from 300mg to 600 mg daily to be effective.

http://www.ncbi.nlm.nih.gov/pubmed/23183519

The brain needs a healthy level of cholesterol to function optimally. Indeed, many of the body's hormones use cholesterol as a precursor in the their production. Since it is difficult for cholesterol to pass through the blood brain barrier the effects of serum cholesterol reduction can be amplified in the brain.

Although the brain makes up only 2% of the body's weight, it contains 25% of the body's cholesterol. Cholesterol is highly concentrated in the myelin sheath, which encloses axons which transport messages via the nervous system. Cholesterol also plays a crucial role in facilitating the transmission of neurotransmitters across the synapse.

http://www.mayoclinic.org/diseases-conditions/high-blood-cholesterol/in-depth/statin-side-effects/art-20046013

http://people.csail.mit.edu/seneff/why_statins_dont_really_work.html

A fascinating account of statin side effects was written Dr. Duane Graveline, former astronaut, aerospace medical research scientist, flight surgeon, and family doctor. In his book, Lipitor; Thief of Memory, Dr Graveline shares his experiences of losing his short -term memory while taking Lipitor to lower his cholesterol. Upon cessation of the drug his memory returned. Encouraged by his peers a year later to resume the drug at half dose, his memory loss became more severe and was hospitalised and diagnosed with transient global amnesia. Virtually all his memory had gone. Again, upon cessation of the drug, his memory returned.

http://www.amazon.com/Lipitor-Thief-Memory-Duane-Graveline/dp/1424301629

In all fairness, there are also some dissenting studies which suggest statins may have a beneficial effect on dementia and Alzheimer's disease. It is interesting to note that the suggested benefits conferred are due to an anti-inflammatory effect of the drug.

Cortisol and cognitive dysfunction

Cortisol, a hormone made by the adrenalin glands is vital to maintaining wellness and homeostasis. Dubbed "the stress hormone", cortisol helps regulate the many changes the body has in response to stress. Cortisol levels profoundly influence most organs in the body and blood pressure, inflammation, immunity, blood sugar levels, and brain function are all directly affected by it.

Cortisol levels fluctuate throughout the day and night in a circadian rhythm. Generally higher levels in the morning provide energy in the morning and continue until the evening when ideally cortisol decline facilitates a restful and deep sleep. Often people have an opposite pattern to this whereby they are exhausted in the morning and then as stress provoked cortisol rises throughout the day, anxiety and insomnia often results.

Often similar symptoms can be experienced with both high and low levels of cortisol. Thus testing is desirable since the treatment for low and high cortisol level is completely different. For accurate testing 4 saliva samples are taken throughout the day; 6:00 am, noon, 6:00 pm, and 10:00 pm since cortisol can fluctuate dramatically.

Typical symptoms of high levels of cortisol are: impaired cognitive function, reduce thyroid function, high blood pressure, lowered immunity, insomnia, loss of muscle and bone density, and deposition of abdominal body fat.

Typical symptoms of low levels of cortisol are: depression, brain fog, low thyroid function, fatigue, insomnia, low immunity, low blood pressure and inflammation.

http://archpsyc.jamanetwork.com/article.aspx?articleid=482360

http://www.ncbi.nlm.nih.gov/pubmed/11020091

http://www.ncbi.nlm.nih.gov/pubmed/17151169

http://www.ncbi.nlm.nih.gov/pubmed/2560104

The advantages of saliva testing

Saliva testing has been used to measure hormones since the late 1960s and has many advantages over serum (blood) testing. The most significant feature of saliva testing is that it measures "free" or biologically active hormones.

It is thought that up to 95% of our hormones are biologically inactive because they are "bound" with proteins. Saliva testing focuses on the small amount of "free" or biologically active fraction of hormones. These unbound hormones are more readily available to be absorbed and utilized by the cells.

http://www.ncbi.nlm.nih.gov/pubmed/6316831

http://www.ncbi.nlm.nih.gov/pubmed/6261989

Subclinical hypothyroidism and cognitive decline

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4192986/

The vast majority of people who suffer from thyroid problems suffer from hypothyroidism...that is, an under active thyroid. The thyroid produces hormones which affect almost all the cells in your body. It is no wonder then, that a disorder of the thyroid can cause literally hundreds of different problems in your body including cognitive decline. (See partial list)

Fatigue, decreased libido, candida, dry skin, premature aging, infertility, constipation, mood swings, frequent infections, headaches, blood pressure problems, endometriosis, diabetes, cancer, nervousness, insomnia,

heart attack, weight loss or weight gain, stroke, hair loss, high cholesterol, intolerance to heat, muscle weakness, low immune system, arthritis, gout, depression, osteoporosis, joint pain, muscle pain, heart palpitations, cystic breasts, ovarian cysts, intolerance to cold, insulin resistance

What makes matters worse, is that there are many people who suffer from hypothyroidism that remain undiagnosed. There are a number of reasons for this that you should understand to empower you to take steps to see if you are one of the many who are suffering without knowing that your thyroid is underactive.

The most common medical test for measuring the function of the thyroid is a blood test which measures the level of Thyroid Stimulating Hormone (TSH or thyrotropin) that your anterior pituitary gland produces. In a sense, this is a conversation between the pituitary gland and your thyroid gland. When your thyroid is being lazy and not producing enough thyroid hormones, the pituitary gland produces more TSH as a signal to encourage the thyroid gland to start working harder and produce more hormones. The converse is also true. That is, if the thyroid is overproducing hormones the pituitary produces less TSH in an attempt to down regulate thyroid hormones production.

There are a number of potential shortcomings of the TSH as a measurement of thyroid function.

Firstly, the reference range that most Australian pathology companies use is outdated according to medical experts overseas. In Australia the so called "normal" range goes from .4 to 4 and in some cases, .4 to 5. In recent years many pathology companies overseas have narrowed this range to .4 to 2.5. Some doctors believe that a TSH of 1.0 is ideal for many people especially if one is trying to lose weight or trying to conceive.

This means that if your TSH is greater than 2.5 and less than 5, in Australia you

would be classified as "normal" whereas under the stricter overseas range you would be diagnosed as suffering hypothyroidism. The more narrow range could be described as the "ideal" or most healthy range. A recent study of 65,000 healthy people without thyroid disease found that the most common TSH reading (Mode) was 1.25 and the Median Value was 1.50 (that is, over half the population in the study had a reading below 1.50. The average (Mean Value) was 1.68. Eighty-five percent of the group had a TSH under 2.35 (See Chart)

http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fwww.sonjas-stoffskifteforum.info%2Fattachment.php%3Fattachmentid%3D57%26d%3D1352816918&ei=j93uVKXAM8HZmgWAx4KwBg&usg=AFQjCNG0KStA7xkUsPi3c6dl8IzWnpj06Q&bvm=bv.86956481,d.dGY

The second and perhaps more significant problem with interpreting the TSH reading is to remember that it is only the "dialogue" between the pituitary gland and the thyroid. This "dialogue" helps regulate the production of thyroid hormones, but it provides no information as to whether the thyroid hormones are being effective in their "target tissues". This is where "the rubber meets the road"! To understand this, we must realize that hormones are chemical "messengers" that have instructions to deliver to cells. This instruction tells cells what to do. The transfer of "information" from the thyroid hormone (indeed all hormones) takes place at the cell membrane (cell wall). Hormones are like "keys" that fit into locks (receptor sites). When the "key" fits the receptor site, the information is taken on board the cell to stimulate cell function and often initiate gene expression.

The problem occurs when there are adequate amounts of thyroid hormones circulating in the blood, but the exchange of information and instructions does not occur at the cell membrane. It's as though the hormones don't exist since the cells are "resisting" (ie not listening) to the hormones' instruction. This ineffectiveness of the hormone's ability to transfer information to the cell has been named, "Type 2 Hypothyroidism".

http://www.amazon.com/Hypothyroidism-Type-2-The-Epidemic/dp/0975262408

As an aside, a similar concept occurs with insulin and blood sugars, known as "insulin resistance". In this case, there is plenty of insulin (a hormone) in the bloodstream, but poor receptor site health at the cell wall, likewise ignoring the instructions of insulin.

http://www.ncbi.nlm.nih.gov/pubmed/22424621

Another potential undiagnosed problem occurs with the lack of conversion of T4

to T3. The main hormone that the thyroid produces is called T4. T4 is relatively inactive and must be converted by the body to the more active form called T3. If for various reasons T4 cannot be converted efficiently to T3, hypothyroidism can result.

Measuring basal metabolic temperature

An extremely prevalent symptom of hypothyroidism is a lowering of body temperature. A lower body temperature is a sign of a decreased metabolism. Cold hands and feet are often part of the symptom picture. People can also feel "hot" yet still have a lowered body temperature.

Temperature should be taken first thing in the morning before getting out of bed. Excess bed clothing or blankets can give a high reading as can an abnormal sleep pattern the night before. It is ideal to measure after a good or average night's sleep.

Place the thermometer under your armpit until it beeps (assuming digital thermometer) before rising first thing in the morning. Temperature readings between 36.6 C and 36.8 C are considered normal. Any reading lower than 36.6 strongly suggests hypothyroidism. This test can also be an indication when the thyroid has been successfully treated since body temperature will then rise back up to the normal range. At least 3 to 5 measurements are recommended

Men can do the test any day when not rushed and after an adequate night's rest. Women's temperatures however, can fluctuate at different times of their menstrual cycle. Day 2 until Day 6 are ideal. (Day 1 is when the menstrual bleeding starts) However, measurement at different times of the cycle can be important for comparison and also indications of hormone fluctuations.

Before puberty and after menopause, women can take their temperature on any day.

It is not recommended that the temperature be taken orally. Oral temperature can be affected by sinus problems, teeth and gum problems, general inflammation in the body, etc.

If your basal metabolic temperature is significantly lower than the target range consider taking a thyroid supplement. Since iodine is a major raw material for the production of thyroid hormones low levels can reduce thyroid function. Iodine levels can be tested with urine samples.

https://napiers.net/underactive-thyroid.html

http://ajcn.nutrition.org/content/83/1/108.full

Food allergy testing

It has been long known that food plays a significant role in brain health. In my experience generally the focus has been on what foods are beneficial for brain growth, function and maintenance.

However, the converse is also true in that foods can have an irritating effect on the brain, either directly or through some secondary related process such as food allergies, food intolerances, and digestive problems.

http://www.ncbi.nlm.nih.gov/pubmed/23325332

Dr David Perlmutter convincingly argues in his book Grain Brain that consumption of gluten and refined sugars contributes to brain decay. These foods not only can create inflammation and discomfort in the gastrointestinal tract but also can travel systemically via the blood to affect many body parts including the brain.

http://www.amazon.com.au/Grain-Brain-Surprising-Brains-Killers-ebook/dp/B00H4EPCGW/ref=sr_1_1/378-9086237-5854964?s=digital-text&ie=UTF8&qid=1425860882&sr=1-1&keywords=grain+brain

The majority of adverse reactions to food are rarely life threatening, but may be a source of considerable discomfort in many chronic conditions and diseases.

The symptoms are varied and individuals can react in different ways. Many people live with minor or major symptoms of adverse food reactions for years without ever suspecting the involvement of the immune system and the foods which trigger them.

Food sensitivity is often given a low priority in the investigation of disease. Common conditions where food sensitivity may play a significant role include bloating and fluid retention, inflammatory bowel disease, irritable bowel syndrome, migraine, depression and mood swings, asthma, skin conditions and behavioural problems in children.

IgG Food Sensitivity testing is a blood test that measure's the body's immunological response to foods. For a number of reasons if the immune system doesn't "like" a food or additive it produces antibodies which can eventually cause a myriad of symptoms. IgG Food Sensitivity testing in conjunction with a case history and other test results, is an efficient and reliable method for discovering which foods are causing adverse reactions in the body.

IgG vs IgE allergies

It's important that we make a distinction between IgG and IgE allergies. IgE mediated food reactions are immediate and can be life threatening. Typical reactions include abdominal cramping, diarrhoea, skin rashes, hives, swelling, wheezing or the most extreme reaction, anaphylaxis. The allergens are generally easy to detect and commonly occur in children but are rare in adults. Usually only involves one or two foods such as peanuts and these allergens need to be strictly excluded from the diet.

IgG mediated food allergies or sometimes referred to as "food intolerances", are much more difficult to detect since the allergic reaction can be delayed by as much as 2 days. IgG reactions generally involve multiple foods and are the most common form of food sensitivity in both children and adults.

Common conditions where food sensitivity may play a significant role include abdominal bloating and fluid retention, inflammatory bowel disease, irritable bowel syndrome, migraine, depression, mood swings, asthma, skin conditions, and behavioural problems in children. These food intolerances once detected and managed properly, can often be reversed.

Early testing for IgG food sensitivity in children may therefore identify children with an increased risk of developing future allergic disease.

An aggravation of neurological symptoms has been reported in autistic patients after the consumption of milk and wheat. On testing it was found that the level of IgG antibodies for casein and other milk proteins was significantly high to be an aggravating factor.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3747333/

Glutathione; the master antioxidant

Glutathione defends against toxins, disease, aging and oxidative stress.Declining levels of glutathione in the body increases vulnerability to over 70 major disease including Alzheimer's disease, autism, Parkinson's disease, liver disease, cancer, heart attack, stroke, diabetes, depression, fatigue, inflammation, arthritis, thyroid disease, allergies, poor immunity, frequent infections, poor memory, impaired cognition, insomnia, weight gain, and vision problems.

"Being able to stimulate the body's own endogenous production of glutathione is the most significant breakthrough in natural medicine that I've seen in 3o years."

Glutathione is the body's most important defense against free radicals, chemical toxins, radiation, heavy metals, pollution and oxidative stress.

To read more about glutathione go to...

http://www.vdk.com.au/glutathione

Glutathione, oxidative stress, and neurodegeneration

As we begin to understand the damaging effects of excess oxidative stress on brain function we realize how important it is to have optimal levels of glutathione to prevent this deterioration.

http://www.ncbi.nlm.nih.gov/pubmed/10931172

http://www.ncbi.nlm.nih.gov/pubmed/24145751

http://www.ncbi.nlm.nih.gov/pubmed/12217624

Neuroplasticity

The human brain has an astonishing ability to adapt and change given the right stimulation. Neuroplasticity or brain plasticity is an umbrella term describing the ability of the brain to change and form new neural pathways. Neural pathways are the communication system between the brain and the nervous sytem. It is how the brain communicates with distant parts of one's body.

Adaptive changes in these neural pathways are due to changes in behaviour, environment, thinking, emotions, diet, and injuries.

Although any mental stimulation can be a good thing, given the complexity and numerous contributing factors to cognitive decline and neurodegeneration, we can see that doing crosswords are not enough.

Summary and recommendations

Empirical evidence and thousands of medical studies have shown that a number of contributing factors are implicated in the process of cognitive decline and neurodegeneration. The holistic and integrative approach strives to identify these many factors and reduce their cumulative effects. We have seen that often this is a complex process with many, sometimes hard to identify, and often seemingly unrelated influences.

While addressing the impact of contributing factors, the introduction of targeted supplements including nootropics are employed to slow down, halt, and hopefully reverse cognitive decline and neurodegeneration.

It is imperative to take proactive action as early as possible. I have seen these processes in all ages, including teenagers.

This book in no way is meant to be used as a diagnostic or prescriptive resource. My goal is to empower you to make wise decisions regarding your health and to open your mind to other possibilities.

I strongly recommend that you consult with a health professional who is experienced in the use of nootropics and integrative medicine.

If you are taking medically prescribed drugs, do not change your prescription without first consulting your doctor.

All medicines have the potential for side effects. Changes or additional supplements must be introduced gradually and systematically based on what factors are relevant for the individual. Everyone is different.

Protocols of course will differ, but here is a check list to consider...

- Find a practitioner who understands the concepts in this book.
- Assess lifestyle factors.
- Assess medical history.
- Assess familial/genetic risk factors.
- Include a course of acupuncture preferably done by a government registered Practitioner of Chinese Medicine.
- If you or your parents or relatives are prone to depression, anxiety, panic attacks, or mood swings test neurotransmitters.
- If you have had digestive problems, bowel problems, rashes, IBS, allergies, or allergies run in the family, consider the IgG food intolerance allergy test.
- Have your circulation, and by extrapolation, your nitric oxide levels assessed.

After the age of 30, nitric oxide levels start to decline. Cardiovascular disease is a major risk factor for cognitive decline and poor circulation to the brain is very common. A healthy brain needs lots of blood.

- Get expert advice on which nootropic or combination of nootropics is right for you.
- If you are often tired, have fibromyalgia, had significant stressful events in your life, feel like you can't cope, prone to inflammation, allergies, and anxiety, have your adrenal glands tested.
- Markers for chronic inflammation are useful to discover conditions of hidden inflammation. Consider High Sensitive C-Reactive Protein.
- Measure your Basal Metabolic Temperature to see if Type 2 Hypothyroidism is a possibility.

The key to maintaining a healthy brain and nervous system is to recognize the early warning signs and take a proactive holistic approach. What is more important than your brain?

Crosswords are not enough.

"Really good site with tons of information. Well done."

Prof. Daniel Weber PhD; MSc
CEO Panaxea Medicine
Visiting Professor; Tianjin University
President; Association for Integrative Oncology and Chinese Medicine
Member editorial board; Journal of Integrative Medicine (China)
Vice-Chair Oncology; World Federation of Chinese Medicine Societies
Advisor to the Global Consortium of Oncology and Chinese Medicine (Beijing)
Chinese Medicine Board of Australia Reg:CMR0001709700

"I have known Dennis for 3 decades now since student days in Melbourne in the 1980's. Our professional paths have crossed many times since then. Both of us hungry for greater knowledge and constantly searching for an edge on those difficult to treat conditions, swapping clinical gems and client cases and discussing techniques and technologies that could assist our clients. This is what makes the practice of functional medicine a constantly evolving but immensely stimulating and rewarding field to be involved in. And I know that Dennis is as passionate and steadfast about this evolving new paradigm of medicine as I am.

Dennis' strength lies within his longevity of experience and his ability to educate on a scale broader than his immensely successful practice and I congratulate Dennis on a book well written that I suggest will both enlighten and educate his readers."

Chris Ravesi
N.D., D.Ac.
AHPRA registered health practitioner, Registered Acupuncturist with Chinese Medicine Registration Board.
Member of the Australian Traditional Medicine Society and the Australian Acupuncture and Chinese Medicine Association

"There will never be a simple, one-pill solution for the many neurological and mental diseases affecting our society. This is why an integrative approach to healing is essential. Dennis provides a comprehensive overview of natural solutions to help protect and promote the growth of new brain cells. This book is a great read for anyone serious about enhancing brain health and survival."

Dr Adrian Lopresti
Clinical Psychologist
B.A.Psych (Hons), M.A., PhD

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